SmartSite® Optimization Opportunity Examples

Project	Optimization Opportunity	Developed Alternative	Annual Savings
Environmental Systems Components			
Witco Petroleum	Recovery of floating product beneath refinery limited by site access constraints and aquifer conditions	Develop and install single caisson/angle well recovery systems to replace multiple vertical wells	$350K
Mound DOE	Low soil oxygen concentrations due to soil saturation, and low soil nitrogen concentrations are limiting biodegradation rates which extends required remediation time associated with landfill leachate.	Use existing dewatering trenches to decrease saturation. Install dual soil vacuum extraction/air injections system beneath landfill using angle drilling technique to enhance biodegradation rates coupled with mass removal by SVE.	$60K
CBS	Solution weathering and geologic conditions limit capture and mass removal rates of P&T system	Installation of angle drilled wells at strategic locations to intercept conduits of contaminant flow which eliminates the need for 2 wells	$45K
Olivetti Supplies	Decline in groundwater concentrations and characterization of surface water receptors altered remedial requirements	Perform fate and transport analysis along with human health and environmental risk assessment. Gain regulatory approval for NFA based on risk assessment results.	N/A–Accelerated Closure
Site Operating System Components			
Aberdeen Proving Ground	Iron fouling of groundwater extraction system High pump repair and maintenance costs Clogging and intensive maintenance of well discharge lines	Replace down-hole Clean Environment pumps with surface mounted double diaphragm pumps Replace bubbler level controls with electrical transducers	$31K
Olivetti Supplies, Inc., Harrisburg, PA	Multiple contamination areas require multiple treatment systems	Upsize treatment system to handle most significant area Manifold multiple areas to single treatment system Develop sequential treatment approach for multiple areas using a single treatment system	$42K
Loring Air Force Base	Emulsification of recovered product prevents separation by oil water separator.	Install second tank in sump. Install positive displacement pump at grade level. Upsize the oil water separator.	$24K
SouthDiv NIROP	Piping configuration requires additional pump, resulting in unnecessary electrical power costs	Reroute and resize piping to provide for gravity discharge	$16K

SmartSite® Optimization Opportunity Examples (cont'd)

Project	Optimization Opportunity	Developed Alternative	Annual Savings
Equipment Operations, Maintenance, and Monitoring Component			
Kodak Corporation	Management/off-site disposal of acid wash water is labor-intensive and high cost	Treat water on-site and manage with treated effluent.	$21K
Harley Davidson	On-site operational problems associated with complex treatment train required frequent site visits by off-site personnel	Configure treatment system SCADA to facilitate off-site problem analysis and resolution by on-site O&M staff	$24K
S. Jersey Clothing Site	System shut down requires on-site acknowledgment of system faults, and manual startup involving over 40 individual system control switches	Configure SCADA for off-site alarm recognition and acknowledgement, and automated sequence up of multiple system controls as one action	$23K
Higgins Farm	Improper set point programming of pH sensors and feed control caused high fluctuations in effluent pH, resulting in frequent system alarms	Reprogram set points and sensor delay functions Reprogram SCADA to allow for off-site alarm recognition	$23K
Management and Administrative Function's Component			
Aberdeen Proving Ground	Manual collection of data is labor intensive and increases monitoring costs.	Upgrade existing human-machine-interface (HMI) and RF communications linkage. Install PLC panel modifications and instrumentation. Configure system for automated data collection into Microsoft Access database.	$11K
Northampton Co. Water Authority	Management of fourteen separate remote pumping centers made performance tracking, monitoring, and management extremely labor intensive	Developed remote SCADA linkage with each facility, coupled with automated linkage to centralized database to facilitate data management and generation of streamlined reports.	$40K
Harley Davidson, York, PA	Multiple remediation programs at single site resulted in intensive data management and reporting	Develop GIS system for management of spatial and numeric information Develop automated data input and standardized reporting functions.	$18K

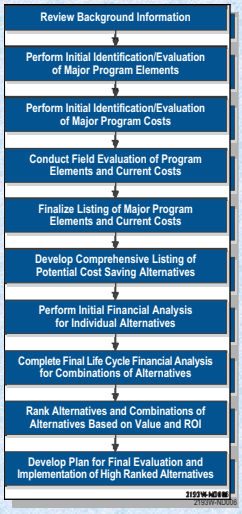
Formal and Documented Approach

- LTO/LTM and SmartSite® Manual
- Data Modules
- Dedicated Data Bases
- Structured Review Process
- Documented QA/QC Program
- Formal and Documented LTO/LTM SOPs

Optimization Approach

Manual Table of Contents

SAIC's optimization approach is thorough and well documented



Optimization Approach (cont'd)

- Team approach
- Standardized data collection modules
- Identification of cost-saving opportunities
- Rigorous financial analyses
- Phased implementation

SmartSite® Optimization Team

- O&M Field Technician
- Remediation Scientist
- Process Engineer
- Automation and SCADA Engineer
- Information Management Integrator
- Cost Estimator